

Adaptation of Social Interaction Practices for the Preschool Years Into Turkish: Validity and Reliability Study

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The aim of this study is to adapt SIPPY (social interaction practices for the preschool years) scale into Turkish. The SIPPY is a tool designed to assess teachers' judgments of the acceptability and feasibility, as well as their current use of literature-supported strategies for promoting the development of young children's social competence in early childhood classrooms, but only one part of the scale—the form about determining strategies that preschool teachers' use—is used in this study. It is a 5-point Likert-type scale and has 30 items. After verification of Turkish equivalence of the form, it is administered to 200 preschool teachers for validity and reliability study. The scale's total and internal consistency was calculated by using Cronbach Alpha reliability coefficient, Sperman-Brown formula, and Guttmann Split-Half reliability coefficient. Descriptive analysis and CFA (confirmatory factor analysis) and item discrimination forces were calculated in order to identify the scale's content validity. Findings show that the scale is an appropriate instrument to examine preschool teachers' practices about supporting preschool children's social competence.

Keywords: preschool teachers' social interaction practices, preschool children's social competence, early childhood classroom

Introduction

Social competence of the children, in broad meaning, is behaving in a cooperative, sensitive, and friendly way and taking responsibilities to maintain interpersonal relationships in a positive way (Green & Rechis, 2006). Social competence encourages social harmony and social integration, and solves and avoids social conflicts (Benson, 2003). As a part of healthy development, students need to improve their social competence (Butts & Cruzeiro, 2005).

Researchers have pointed out the effects of students' social relationships and emotional developments on their adaptation to school and their academic success (Cooper & Farran, 1988). There is a dynamic relationship between social-emotional learning and academic success. Development of social competence has positive effects not only on quality of interpersonal relationships and relationships formed among children, but also on their academic success. Moreover, students need a healthy social-emotional development in order to be prepared and to be ready to learn. Social-emotional competence includes cooperative and pro-social behavior, friendship with peers, initiating and maintaining relationship with adults, management of aggression and conflict, development of superiority and self-esteem, and regulation of emotions and giving appropriate

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reactions (Aviles, Anderson, & Davila, 2006).

Basic knowledge and skills acquired in early years with qualitative and sufficient experiences not only increase the individuals' success in their further learning, but also affect their social-emotional life positively. Key factors affecting social-emotional development include characteristics of the child, upbringing style and family characteristics, environmental factors, interactions among some factors, and peers' and teachers' characteristics. There is not a single factor responsible for a child's social-emotional development. All factors are interrelated and responsible for the results (Campbell & James, 2007). Social interaction process which begins with realization of a baby itself continues for a lifetime (Cüceloğlu, 1998). Social interaction begins in the family and intensifies in the school life and the chance of interaction with both adults and peers increases. The most important factor that will influence social interaction process in school is the teacher.

Teachers' social-emotional skills, well-being, healthy teacher-student relationships, effective classroom management, emotional activities, and healthy classroom environment affect students' social-emotional and academic outputs (Jennings & Greenberg, 2009).

When the literature is reviewed, it is seen that there is not an instrument in Turkish to measure social interaction activities in preschool period. In this study, the aim is to adapt SIPPY (social interaction practices for the preschool years) which is a tool designed to assess teachers' judgments of the acceptability and feasibility, their usage of strategies for promoting the development of young children's social competence in early childhood classrooms into Turkish, but in this study, only one part of the scale—the form about determining strategies that preschool teachers' use—is adapted.

Method

Research Model

Survey model was used in this study. Within this framework, by doing validity and reliability study of the scale which is developed to identify teachers' social interaction activities, teachers' and preschool teachers' level of social interaction activities tried to be identified.

Participants

The sampling of the study is composed of 200 preschool teachers working in kindergartens and preschools affiliated with National Ministry of Education.

Data Collection Instrument

SIPPY scale developed by Kemple, Kim, Ellis, and Han (2008) is a 30-item 5-point Likert-type scale with three sub-scales—These are strategies about the environment, natural strategies, and intensive strategies.

Questionnaire Adaptation Process

According to Hambleton and Patsula (1999), while doing an adaptation of a questionnaire, one of the most important phases was translation, so in this phase, the questionnaire was translated from English into Turkish by three experts in their fields. Translations were compared and discussed and the Turkish text was formed by choosing the best representatives of each item. Then, these items were translated from Turkish into English by three English language experts, and it was found that there was equivalence with the first form of the test and translation phase was finished. After being examined by field experts, one of the items was removed from the test and it took its final form with 29 items to be used in a pilot study.

Before its psychometric features were analyzed, the scale which was adapted and the necessary corrections which were made were administered to a pilot group, and whether there were any other changes needed were

checked. Adapted scale was given to preschool teachers to revise, and in the light of their opinions, it was revised again. After forming rough form of the scale, it was administered to 200 preschool teachers in order to analyze the scale's factor structure and construct validity and reliability of the scores and distinctive feature of the items.

Data Analysis

After administering rough scale to the sample, group gathered data were uploaded to SPSS 16 (Statistical Package for the Social Sciences) and Amos software to analyze the scale's validity and reliability from statistical ways.

In order to identify construct validity and factor structure of SIPPY scale, CFA (confirmatory factor analysis), exploratory factor analysis, and principal component analysis as factor techniques were used. In CFA, model and data consistency were analyzed and hypotheses formed to analyze the relationship between the variables were tested (Tabachnick & Fidell, 2001, as cited in Gülbahar & Büyüköztürk, 2008). In CFA, a number of conformity indexes were used to evaluate the model's validity. Among them, chi-square goodness, GFI (goodness of fit index), AGFI (adjusted goodness of fit index), RMR/RMS (root mean square residuals), and RMSEA (root mean square error of approximation) are the ones mostly used (Gülbahar & Büyüköztürk, 2008). In literature review, if (χ^2/sd) ratio calculated with CFA is lower than five, it is a sign of a good confirmation between the model and real data (MacCallum, Browne, & Sugawara, 1996; Sümer, 2000). For confirmation between the model and data, it is expected that GFI and AGFI values must be over 0.90 and RMS or standardized RMS with RMSEA values must be lower than 0.05 (Sümer, 2000; Şimşek, 2007). On the other hand, if GFI value is over 0.85, AGFI value is over 0.80, and RMS value is lower than 0.10, then, this is accepted as a criterion for the confirmation between the model and the real data (Anderson & Gerbing, 1984; Marsh, Balla, & McDonald, 1988; Sümer, 2000; Kline, 2005; Şimşek, 2007). Moreover, for the questionnaire whose factor structure was identified, and for its sub-scales, Cronbach Alpha, internal consistency coefficients, and the power of item distinctiveness, total item correlations were calculated.

Each item was scaled as "Never (1)", "Rarely (2)", "Sometimes (3)", "Often (4)", and "Always (5)". The scores obtained from the teachers' responses to 5-point Likert-type scale do not show an standardized quality as there are differences in the number of items in sub-scales. As a result, turning gathered raw scores into the lowest 20 and the highest 100 as standard scores would be appropriate. Because the aim of developing this scale is to reach social interaction practice scores that can be standardized without depending on administered group's characteristics. While converting raw scores into standardized scores following formula can be used:

$$X_{\text{standart puan}} = \frac{X_{\text{ham puan}}}{\text{Ölç. Mad. Say.}} \times 20$$

Levels corresponding to the scores obtained from sub-scales can be summarized as: 20-51: low level, 52-67: average level, and 68-100: high level. On data that are calculated in this way in order to identify teachers' practices about social interactions in preschool, frequency, percentage, arithmetic average, standard deviation, and *t*-test were used. In differentiation analysis, $p < 0.05$ significant level was considered enough (Korkmaz & Kaya, 2012).

Findings

Findings Related With the Scale's Validity

Construct validity. In order to identify SIPPY scale's construct validity and factor structure, confirmatory

and explanatory factor analysis were used. Before applying explanatory factor analysis, first the appropriateness of the items, partial correlation between the items, and appropriateness of correlation matrix for factor analysis were examined. Moreover, using KMO (Kaiser-Meyer-Olkin) coefficient and Bartlett's test of sphericity, appropriateness of the data was examined too. Then, considering the items' theoretical structures according to three factors, varimax orthogonal rotation technique was used. Gathered results were shown in Tables 1 and 2 as below.

Table 1

KMO and Bartlett's Test Results

KMO measure of sampling adequacy test		0.83
	χ^2	1.62
Bartlett's test of sphericity	df	32
	p	0.00

Notes. χ^2 = Chi-square; df = Degrees of freedom.

Table 2

Factor Analysis Results of SIPPY Questionnaire

Item number	Factor load values before rotation	Varimax orthogonal rotation		
		Strategies related with environment	Natural strategies	Intensive strategies
1	0.33	0.44		
2	0.48	0.69		
3	0.37	0.53		
6	0.34	0.49		
7	0.55	0.73		
8	0.67	0.81		
9	0.39	0.57		
10	0.38		0.54	
11	0.50		0.70	
12	0.45		0.66	
13	0.48		0.69	
14	0.46		0.49	
15	0.54		0.68	
16	0.36		0.47	
18	0.54		0.61	
19	0.52		0.60	
20	0.31			0.36
21	0.47			0.68
22	0.45			0.66
23	0.43			0.50
24	0.30			0.43
25	0.36			0.42
26	0.46			0.64
27	0.54			0.59
28	0.50			0.56
29	0.45			0.48

It is seen that KMO value (0.83) and Bartlett's test were significant ($\chi^2 = 1.62$, $df = 32$, $p = 0.00$, $p < 0.05$). In order to evaluate factor structure of data with factor analysis, related literature review suggests that factor

load must be 0.30 at least, KMO value must be over 0.60, and Bartlett's test of sphericity must be less than 0.05, or in other words, must be found significant (Büyüköztürk, 2002; Hinkin, 1995). Consequently, these results indicated that data were appropriate to do factor analysis.

At the end of varimax rotation and rotated component matrix, the first factor load value of SIPPY scale changed between 0.44–0.81, the second factor load value changed between 0.47–0.70, and the third factor load value changed between 0.36–0.68.

When total variance obtained at the end of components analysis was examined, three factors predicting 45.42% of the total variance were found. Findings show that the first factor predicts 29.61% of the total variance, the second factor predicts 8.53% of the total variance, and the third factor predicts 6.98% of the total variance. These findings show that the scale developed to identify social interactions used in preschool classes by teachers measures this structure fully and achieves this aim.

Item differentiation. In this section, according to total item correlation method, item differentiation level was tested by calculating correlations between scores gathered from each item and scores gathered from factors. Thus, each item's service level to the scale's overall objective, correlations between scores gathered from each item, and score gathered from the scale overall were tested. Item-factor correlation values gathered for each item were given in Table 3.

Table 3
Item-Factor Scores' Correlation Analysis

Strategies related with environment			Natural strategies			Intensive strategies		
<i>m.</i>	<i>r</i>	<i>m.</i>	<i>r</i>	<i>m.</i>	<i>r</i>	<i>m.</i>	<i>r</i>	
1	0.42**	10	0.47**	20	0.49**			
2	0.37**	11	0.37**	21	0.38**			
3	0.49**	12	0.30**	22	0.44**			
6	0.45**	13	0.30**	23	0.53**			
7	0.47**	14	0.58**	24	0.45**			
8	0.44**	15	0.54**	25	0.47**			
9	0.40**	16	0.43**	26	0.53**			
		18	0.63**	27	0.65**			
		19	0.59**	28	0.63**			
				29	0.61**			

Note. ** $p < 0.001$.

As it is seen from Table 3, item-factor correlation coefficients for the first factor is between 0.37 and 0.49, for the second factor is between 0.30 and 0.63, and for the third factor is between 0.38 and 0.65. Each item has a positive and significant correlation with the overall factor ($p < 0.001$). These coefficients are validity coefficients of each item and indicate that they are consistent with the whole factor; in other words, they indicate the level of their service to the factor's overall aim (Carmines & Zeller, 1982; Parasuraman, Zeithaml, & Berry, 1988, as cited in Yüksel, 2009).

CFA (Confirmatory Factor Analysis). CFA is based on the principle of regarding each correlation between the observed and unobservable variables as a hypothesis and testing them as one (Pohlmann, 2004).

Chi-square is a goodness of fit test which is used to test whether there is a difference between original variable's matrix and the matrix that is suggested. The ratio of calculated chi-square value to degree of freedom is very important. If this rate is less than two, it is what is desired (Sümer, 2000; Kline, 2005; Simsek, 2007). In

this study, as seen from Table 4, calculated chi-square value is 366.11 and degree of freedom is 275. The ratio of calculated chi-square to degree of freedom is $366.11/275 = 1.33$ and this value shows that there is a good fit between original variable's matrix and suggested matrix.

Table 4

Calculated Fit Indexes of SIPPY Questionnaire's Measurement Model

GFI statistics	Value
1. df	275
2. χ^2	366.11
3. RMSEA	0.04
4. CFI (comparative fit index)	0.95
5. GFI	0.90
6. AGFI	0.85
7. S-RMR	0.06

Notes. χ^2 = Chi-square; df = Degrees of freedom.

RMSEA is a fit scale that is based on discrepancy (error) between the sample covariance matrix and the model covariance matrix. When the value of RMSEA is between 0 and 0.005, it indicates that there is a good fit, and when it is between 0.05 and 0.08, it indicates that there is acceptable fit (Sümer, 2000; Kline, 2005; Simsek, 2007). In this study, the value found for RMSEA is 0.04 and it means there is a good fit.

CFI is used when comparing an independent model that is assumed to have a bad fit with present data and covariance of proposed model. For this index, the value between 0.97 and 1.00 indicates a perfect fit and the value between 0.95 and 0.97 indicates an acceptable fit (Sümer, 2000; Kline, 2005; Simsek, 2007). The CFI value for this study is 0.95 and it indicates that there is an acceptable fit.

GFI shows the general covariance between the variables calculated by proposed model. When the value for GFI is between 0.95 and 1.00, it indicates a good fit, and when it is between 0.90 and 0.95, it indicates an acceptable fit (Sümer, 2000; Kline, 2005; Simsek, 2007). The GFI value for this study is 0.90 and it indicates that there is an acceptable fit.

AGFI is the value of GFI that is adapted according to degrees of freedom. Critical values identified for this goodness index are 0.90–1.00 indicating well fitting and 0.85–0.90 indicating an acceptable fit (Sümer, 2000; Kline, 2005; Simsek, 2007). The AGFI value for this study is 0.85, and it indicates that there is an acceptable fit.

When all gathered values and expected critical values are compared, it is seen that the values gathered in this study for CFI, GFI, AGFI, and S-RMR indicate an acceptable fit, and χ^2/df and RMSEA values indicate well-fitting. In other words, the gathered model shows that factors are justified by the data.

The connection diagram of the scale's CFA is given in Figure 1.

Findings About the Reliability of the Scale

In order to test the reliability of the scale, data internal consistency analysis was done. The scale's reliability analysis according to factors and as a whole were calculated using Cronbach Alpha reliability coefficient, Spearman-Brown formula, and Guttmann Split-Half reliability formula. Reliability analyses values for each factor and for the whole scale were summarized in Table 5.

As it is seen in Table 5, Spearman-Brown reliability coefficient for the scale that is formed with three sub-factors and 26 items is 0.84; Guttmann Split-Half value is 0.83; Cronbach Alpha reliability coefficient is

0.90. On the other hand, it is seen that these values for factors range between: Spearman-Brown 0.72–0.78, Guttmann Split-Half value 0.71–0.76, and Cronbach Alpha 0.74–0.83.

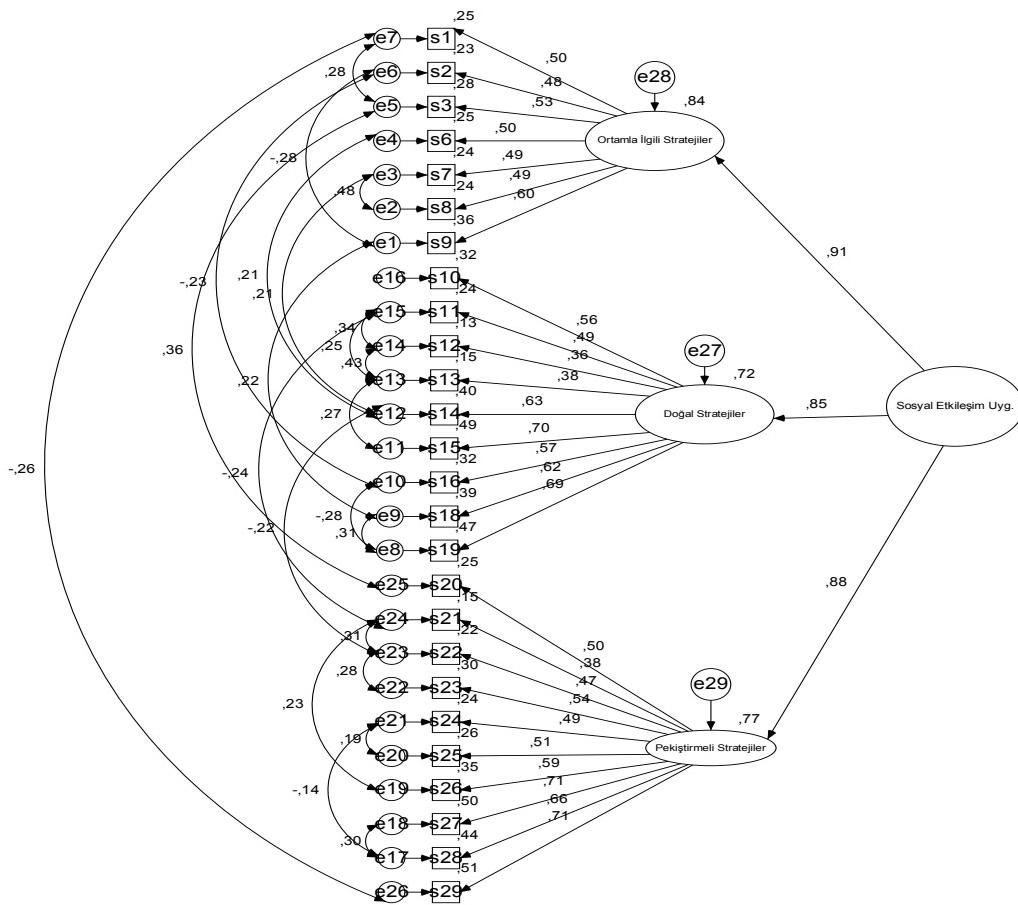


Figure 1. CFA correlation diagram.

Table 5

Reliability Analyses Results Concerning the Whole Scale and Factors

Factors	Item number	Spearman-Brown	Guttmann Split-Half	Cronbach Alpha
Strategies related with environment	7	0.72	0.71	0.74
Natural strategies	9	0.77	0.76	0.81
Intensive strategies	10	0.78	0.76	0.83
Total	26	0.84	0.83	0.90

Findings Concerning Level of Teachers' SIPPY

Level of teachers' social interaction practices in the preschool years is summarized in Table 6.

As it is seen in Table 6, teachers' scores for social interaction practices in the preschool years range between 26 and 130, and their average is $\bar{x} = 1.07$. When data concerning their level of social interaction practices in the preschool years are examined, it is seen that more than half of them are high (79%) and 42% of them are average. According to this, it can be argued that teachers' level of social interaction practices in the preschool years is high. It is identified that teachers mostly use intensive and natural strategies.

Table 6

Level of Teachers' SIPPY

Variables	n	\bar{x}	S.S	Min.	Max.	Level (f/%)					
						Low	Average	High			
Strategies related with environment		28.30	4.27	7	35	5	2.5	12	9	177	88.5
Natural strategies	200	38.89	4.58	9	45	0	0	30	15	170	85
Intensive strategies		39.88	6.22	10	50	5	2.5	53	26.5	142	71
Total		1.07	12.9	26	130	0	0	42	21	158	79

Results and Discussion

In this study, SIPPY was adapted into Turkish. The scale is designed to assess teachers' judgments of the acceptability and feasibility, as well as their current use of literature-supported strategies for promoting the development of young children's social competence in early childhood classrooms. The scale is a 5-point Likert-type and has 30 items.

One item under strategies related with environment sub-dimension was eliminated with specialists' view. At the end of statistical analyses, two items from the same sub-dimension and one item from intensive strategies were eliminated too. The final form of the scale was formed with 26 items: seven items under strategies related with environment, nine items under natural strategies, and 10 items under intensive strategies.

Factor analysis results conducted in accordance with reliability study of the scale have shown that load values of sub-dimensions of SIPPY range between 0.36 and 0.81. In varimax rotation, items with factor loads above 0.30 are used (Comrey & Lee, 1992).

At the end of components analysis, it is seen that three factors can explain 45.41% of the variance in all scale scores. At the end of item factor correlation, correlation values obtained from each item and the factor that the item belongs to varies between 0.30 and 0.65 and each item has a positive and significant correlation with factor in general ($p < 0.001$). These coefficients are reliability coefficients of each item and show the coherence with the whole factor, in other words, the level to serve the general aim of the factor (Balci, 2009). CFA has shown that CFI, GFI, AGFI, and S-RMR values show acceptable fit, χ^2/df and RMSEA values show good fit.

It was seen that about the reliability of the scale, Spearman-Brown reliability coefficient was 0.84; Guttman Split-Half value was 0.83; and Cronbach Alpha reliability coefficient was 0.90. Concerning the factors, Spearman-Brown reliability coefficients were between 0.72 and 0.78; Guttman Split-Half values were between 0.71 and 0.76; and Cronbach Alpha values were between 0.74 and 0.83. Looking at these values, it can be said that the scale can make reliable measurements. Likewise, if the reliability coefficient is 0.70 and above, it is accepted as a sign of the reliability of the scale (Büyüköztürk, 2002).

It was seen that preschool teachers' social interaction practices were high (79%) and average (42%). Furthermore, it was identified that teachers use intensive and natural strategies more.

Consequently, it can be claimed that SIPPY scale is a valid and reliable instrument to measure the level of teachers' uses of social interaction practices.

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